


# EXHIBIT P

## Exhibit P

### Claim Chart for U.S. Patent 12,028,793

Claim	Exemplary Infringement Analysis
1. A method comprising:	<p>The Accused Products perform “a method.”</p> <p>For example, using an iPhone to conduct financial transactions via Apple Pay satisfies the method recited in claim 1.</p> <div data-bbox="380 557 1457 800" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;"><b>Use Apple Pay for contactless payments on iPhone</b></p> <p>With your Apple Cash, credit, and debit cards stored in the Wallet app  on iPhone, you can use Apple Pay for secure, contactless payments in stores, restaurants, and more.</p> </div> <p><a href="https://support.apple.com/guide/iphone/use-apple-pay-for-contactless-payments-iphbd4cf42b4/ios">https://support.apple.com/guide/iphone/use-apple-pay-for-contactless-payments-iphbd4cf42b4/ios</a></p> <p>Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p>
sensing a physiological parameter; then	<p>The Accused Products use a method that involves “sensing a physiological parameter.”</p> <p>For example, using an iPhone to conduct financial transactions via Apple Pay includes sensing (by an iPhone, using a sensor that is part of the iPhone) a physiological parameter. Pertinent iPhone-based sensors include a camera (for Face ID) or a physical sensor (for Touch ID), which can sense a physiological parameter of the user such as facial geometry or a fingerprint.</p>

Claim	Exemplary Infringement Analysis
	<div data-bbox="380 250 1325 721"> <h3 data-bbox="390 266 926 298">When you use Apple Pay in stores</h3> <p data-bbox="390 323 1304 518">When you <a href="#">use Apple Pay in stores</a> that accept contactless payments, Apple Pay uses Near Field Communication (NFC) technology between your device and the payment terminal. NFC is an industry-standard, contactless technology that's designed to work only across short distances. If your iPhone is on and detects an NFC field, it will present you with your default card. To send your payment information, you must authenticate using Face ID, Touch ID, or your passcode (except in Japan if you designate a Suica card for Express Transit). With Face ID or with Apple Watch, you must double-click the side button when the device is unlocked to activate your default card for payment.</p> <p data-bbox="390 542 1293 704">After you authenticate your transaction, the Secure Element provides your Device Account Number and a transaction-specific dynamic security code to the store's point of sale terminal along with additional information needed to complete the transaction. Again, neither Apple nor your device sends your actual payment card number. Before they approve the payment, your bank, card issuer, or payment network can verify your payment information by checking the dynamic security code to make sure that it's unique and tied to your device.</p> </div> <div data-bbox="380 721 926 761"> <p data-bbox="380 721 926 761"><a href="https://support.apple.com/en-us/HT203027">https://support.apple.com/en-us/HT203027</a></p> </div> <div data-bbox="380 802 1415 1075"> <h3 data-bbox="390 818 663 850">Face ID security</h3> <p data-bbox="390 883 1388 1062">With a simple glance, Face ID securely unlocks supported Apple devices. It provides intuitive and secure authentication enabled by the TrueDepth camera system, which uses advanced technologies to accurately map the geometry of a user's face. Face ID uses neural networks for determining attention, matching, and antispoofing, so a user can unlock their phone with a glance, even with a mask on when using supported devices. Face ID automatically adapts to changes in appearance, and carefully safeguards the privacy and security of a user's biometric data.</p> </div>

Claim	Exemplary Infringement Analysis
	<div data-bbox="384 266 699 308"> <h3>Touch ID security</h3> </div> <div data-bbox="384 329 1402 454"> <p>Touch ID is the fingerprint sensing system that makes secure access to supported Apple devices faster and easier. This technology reads fingerprint data from any angle and learns more about a user's fingerprint over time, with the sensor continuing to expand the fingerprint map as additional overlapping nodes are identified with each use.</p> </div> <div data-bbox="384 477 1423 704"> <p>Apple devices with a Touch ID sensor can be unlocked using a fingerprint. Touch ID doesn't replace the need for a device passcode or user password, which is still required after device startup, restart, or logout (on a Mac). In some apps, Touch ID can also be used in place of a device passcode or user password—for example, to unlock password-protected notes in the Notes app, to unlock keychain-protected websites, and to unlock supported app passwords. However, a device passcode or user password is always required in some scenarios (for example, to change an existing device passcode or user password or to remove existing fingerprint enrollments or create new ones).</p> </div> <div data-bbox="369 719 1570 753"> <p><a href="https://support.apple.com/guide/security/face-id-and-touch-id-security-sec067eb0c9e/1/web/1">https://support.apple.com/guide/security/face-id-and-touch-id-security-sec067eb0c9e/1/web/1</a></p> </div> <div data-bbox="384 839 1320 881"> <h3>Pay with your default card on an iPhone with Face ID</h3> </div> <div data-bbox="394 902 1388 1060"> <ol style="list-style-type: none"> <li>1. Double-click the side button.</li> <li>2. When your default card appears, glance at iPhone to authenticate with Face ID, or enter your passcode.</li> <li>3. Hold the top of your iPhone near the card reader until you see Done or a checkmark on the screen.</li> </ol> </div> <div data-bbox="384 1151 1346 1195"> <h3>Pay with your default card on an iPhone with Touch ID</h3> </div> <div data-bbox="394 1213 1388 1291"> <ol style="list-style-type: none"> <li>1. Rest your finger on Touch ID.</li> <li>2. Hold the top of your iPhone near the card reader until you see Done or a checkmark on the screen.</li> </ol> </div> <div data-bbox="369 1349 1629 1383"> <p><a href="https://support.apple.com/guide/iphone/use-apple-pay-for-contactless-payments-iphbd4cf42b4/ios">https://support.apple.com/guide/iphone/use-apple-pay-for-contactless-payments-iphbd4cf42b4/ios</a></p> </div>

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	<p>Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p>
<p>determining whether or not the physiological parameter sensed satisfies a criterion; then</p>	<p>The Accused Products use a method that involves “determining whether or not the physiological parameter sensed satisfies a criterion.”</p> <p>For example, the iPhone determines that the sensed physiological parameter (e.g., Face ID or Touch ID) satisfies a criterion (the Face ID or Touch ID is recognized). For example, the iPhone ensures that the sensed physiological parameter satisfies a criterion before unlocking the iPhone.</p> <div data-bbox="380 667 1325 1138" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p><b>When you use Apple Pay in stores</b></p> <p>When you <a href="#">use Apple Pay in stores</a> that accept contactless payments, Apple Pay uses Near Field Communication (NFC) technology between your device and the payment terminal. NFC is an industry-standard, contactless technology that’s designed to work only across short distances. If your iPhone is on and detects an NFC field, it will present you with your default card. To send your payment information, you must authenticate using Face ID, Touch ID, or your passcode (except in Japan if you designate a Suica card for Express Transit). With Face ID or with Apple Watch, you must double-click the side button when the device is unlocked to activate your default card for payment.</p> <p>After you authenticate your transaction, the Secure Element provides your Device Account Number and a transaction-specific dynamic security code to the store’s point of sale terminal along with additional information needed to complete the transaction. Again, neither Apple nor your device sends your actual payment card number. Before they approve the payment, your bank, card issuer, or payment network can verify your payment information by checking the dynamic security code to make sure that it’s unique and tied to your device.</p> </div> <p><a href="https://support.apple.com/en-us/HT203027">https://support.apple.com/en-us/HT203027</a></p>



Claim	Exemplary Infringement Analysis
	<div data-bbox="386 261 1413 526"> <h3>Face ID security</h3> <p>With a simple glance, Face ID securely unlocks supported Apple devices. It provides intuitive and secure authentication enabled by the TrueDepth camera system, which uses advanced technologies to accurately map the geometry of a user's face. Face ID uses neural networks for determining attention, matching, and antispoofing, so a user can unlock their phone with a glance, even with a mask on when using supported devices. Face ID automatically adapts to changes in appearance, and carefully safeguards the privacy and security of a user's biometric data.</p> </div> <div data-bbox="386 526 1430 997"> <h3>Touch ID security</h3> <p>Touch ID is the fingerprint sensing system that makes secure access to supported Apple devices faster and easier. This technology reads fingerprint data from any angle and learns more about a user's fingerprint over time, with the sensor continuing to expand the fingerprint map as additional overlapping nodes are identified with each use.</p> <p>Apple devices with a Touch ID sensor can be unlocked using a fingerprint. Touch ID doesn't replace the need for a device passcode or user password, which is still required after device startup, restart, or logout (on a Mac). In some apps, Touch ID can also be used in place of a device passcode or user password—for example, to unlock password-protected notes in the Notes app, to unlock keychain-protected websites, and to unlock supported app passwords. However, a device passcode or user password is always required in some scenarios (for example, to change an existing device passcode or user password or to remove existing fingerprint enrollments or create new ones).</p> </div> <div data-bbox="386 997 1570 1037"> <p><a href="https://support.apple.com/guide/security/face-id-and-touch-id-security-sec067eb0c9e/1/web/1">https://support.apple.com/guide/security/face-id-and-touch-id-security-sec067eb0c9e/1/web/1</a></p> </div>

Claim	Exemplary Infringement Analysis
	<div data-bbox="380 248 1535 781" style="border: 1px solid black; padding: 10px;"> <h2 style="margin: 0;">Apple Pay security and privacy overview</h2> <p>Learn how Apple protects your personal information, transaction data, and payment information when you use Apple Pay.</p> <p><a href="#">Apple Pay</a> allows you to make easy, secure, and private transactions in stores, in apps, and on the web. You can also send and receive money with friends and family using <a href="#">Apple Cash</a> (U.S. only). And with contactless rewards cards in Wallet, you can receive and redeem rewards when you pay using Apple Pay.</p> <p>Apple Pay is designed with your security and privacy in mind, making it a simpler and more secure way to pay than using your physical credit, debit, and prepaid cards. Apple Pay uses security features built-in to the hardware and software of your device to help protect your transactions. In addition, to use Apple Pay, you must have a passcode set on your device and, optionally, <a href="#">Face ID</a> or <a href="#">Touch ID</a>.</p> </div> <p><a href="https://support.apple.com/en-us/101554">https://support.apple.com/en-us/101554</a></p> <p>Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p>
responsive to the physiological parameter sensed satisfying the criterion, enabling at least one first function; then	<p>The Accused Products use a method that involves, “responsive to the physiological parameter sensed satisfying the criterion, enabling at least one first function.”</p> <p>For example, when either of a Face ID or Touch ID is recognized, the iPhone is unlocked, thereby enabling a first function (the unlocked iPhone) wherein the user can set up a payment method (e.g., a credit card) for Apple Pay.</p>

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	<div data-bbox="386 261 1413 526"><b>Face ID security</b><p>With a simple glance, Face ID securely unlocks supported Apple devices. It provides intuitive and secure authentication enabled by the TrueDepth camera system, which uses advanced technologies to accurately map the geometry of a user's face. Face ID uses neural networks for determining attention, matching, and antispoofing, so a user can unlock their phone with a glance, even with a mask on when using supported devices. Face ID automatically adapts to changes in appearance, and carefully safeguards the privacy and security of a user's biometric data.</p></div> <div data-bbox="386 526 1430 997"><b>Touch ID security</b><p>Touch ID is the fingerprint sensing system that makes secure access to supported Apple devices faster and easier. This technology reads fingerprint data from any angle and learns more about a user's fingerprint over time, with the sensor continuing to expand the fingerprint map as additional overlapping nodes are identified with each use.</p><p>Apple devices with a Touch ID sensor can be unlocked using a fingerprint. Touch ID doesn't replace the need for a device passcode or user password, which is still required after device startup, restart, or logout (on a Mac). In some apps, Touch ID can also be used in place of a device passcode or user password—for example, to unlock password-protected notes in the Notes app, to unlock keychain-protected websites, and to unlock supported app passwords. However, a device passcode or user password is always required in some scenarios (for example, to change an existing device passcode or user password or to remove existing fingerprint enrollments or create new ones).</p></div> <div data-bbox="386 997 1570 1037"><a href="https://support.apple.com/guide/security/face-id-and-touch-id-security-sec067eb0c9e/1/web/1">https://support.apple.com/guide/security/face-id-and-touch-id-security-sec067eb0c9e/1/web/1</a></div>





Claim	Exemplary Infringement Analysis
	<p><b>When you use Apple Pay in stores</b></p> <p>When you use <a href="#">Apple Pay in stores</a> that accept contactless payments, Apple Pay uses Near Field Communication (NFC) technology between your device and the payment terminal. NFC is an industry-standard, contactless technology that's designed to work only across short distances. If your iPhone is on and detects an NFC field, it will present you with your default card. To send your payment information, you must authenticate using Face ID, Touch ID, or your passcode (except in Japan if you designate a Suica card for Express Transit). With Face ID or with Apple Watch, you must double-click the side button when the device is unlocked to activate your default card for payment.</p> <p>After you authenticate your transaction, the Secure Element provides your Device Account Number and a transaction-specific dynamic security code to the store's point of sale terminal along with additional information needed to complete the transaction. Again, neither Apple nor your device sends your actual payment card number. Before they approve the payment, your bank, card issuer, or payment network can verify your payment information by checking the dynamic security code to make sure that it's unique and tied to your device.</p> <p><a href="https://support.apple.com/en-us/HT203027">https://support.apple.com/en-us/HT203027</a></p> <p>Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p>
while said at least one first function is enabled, responsive to having sensed the physiological parameter and responsive to having determined that the physiological parameter	<p>The Accused Products use a method that involves “while said at least one first function is enabled, responsive to having sensed the physiological parameter and responsive to having determined that the physiological parameter sensed satisfies the criterion, requesting an authorization to establish a function to conduct a financial transaction.”</p> <p>For example, while the iPhone is unlocked (i.e., the first function is enabled) and responsive to a Face ID or Touch ID being recognized (i.e., responsive to determining that the physiological parameter satisfies the criterion), the user may set up a payment method in Apple Pay by, for example, adding a credit card (i.e., requesting an authorization to establish a function to conduct a financial transaction). To add a credit card, the iPhone transmits to the card issuer data requesting authorization to use the credit card in future transactions.</p>



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<p>sensed satisfies the criterion, requesting an authorization to establish a function to conduct a financial transaction; then</p>	<div data-bbox="380 248 1451 982"> <h3>Add a debit or credit card</h3> <ol style="list-style-type: none"> <li>1. Open the Wallet app  on your iPhone.</li> <li>2. Tap . You may be asked to <a href="#">sign in with your Apple ID</a>.</li> <li>3. Do one of the following: <ul style="list-style-type: none"> <li>• <i>Add a new card</i>: Tap Debit or Credit Card, tap Continue, then position your card so that it appears in the camera frame, or enter the card details manually.</li> <li>• <i>Apply for Apple Card</i>: See <a href="#">Set up and use Apple Card on iPhone</a>.</li> <li>• <i>Add your previous cards</i>: Tap Previous Cards, then choose any cards you previously used. These cards may include the card associated with your Apple ID, cards you use with Apple Pay on your other devices, cards you <a href="#">added to Safari AutoFill</a>, or cards you removed from Wallet. Tap Continue, authenticate with Face ID or Touch ID, then follow the onscreen instructions.</li> <li>• <i>Add a card from a supported app</i>: Tap the app of your bank or card issuer (below From Apps on Your iPhone).</li> </ul> </li> </ol> <p>The card issuer determines whether your card is eligible for Apple Pay, and may ask you for additional information to complete the verification process.</p> </div> <p><a href="https://support.apple.com/guide/iphone/set-up-apple-pay-iph9b7f53382/ios">https://support.apple.com/guide/iphone/set-up-apple-pay-iph9b7f53382/ios</a></p>

Claim	Exemplary Infringement Analysis
	<div data-bbox="380 251 1276 862"> <p><b>When a Payment Card is added to Apple Pay</b></p> <p>When you add a new payment card (<i>i.e. a credit or a debit card</i>) to Apple Pay, here are the steps that happen behind the scenes.</p> <ol style="list-style-type: none"> <li>1. The payment card's <i>PAN (Primary Account Number)</i>, along with other card related personal details <i>i.e. Your Name, Card Expiration Date</i>, is sent by the <i>Apple Wallet App</i> to the <i>Apple Pay servers</i>.</li> <li>2. From your PAN, the Apple Pay server identifies the credit card <b>Issuer Bank</b>, and then pass the PAN and your personal details to the <b>Issuer Bank</b> requesting a <i>Payment Token</i> from the <b>Issuer Bank</b>.  <i>Note that the Issuer Bank must have partnered with Apple Pay, and be part of the Apple Pay network in order for Apple to add that payment card onto the iPhone. If the Issuer Bank has not partnered with Apple Pay, you cannot add that card to Apple Pay.</i></li> </ol> </div> <p><a href="https://codeburst.io/how-does-apple-pay-actually-work-f52f7d9348b7">https://codeburst.io/how-does-apple-pay-actually-work-f52f7d9348b7</a></p> <div data-bbox="380 938 1696 1276"> <h2>Apple Pay participating banks in Canada, Latin America, and the United States</h2> <p>Apple Pay works with many of the major credit and debit cards from the top banks. Just add your supported cards and continue to get all the rewards, benefits, and security of your cards.</p> </div> <p><a href="https://support.apple.com/en-us/HT204916">https://support.apple.com/en-us/HT204916</a></p>

Claim	Exemplary Infringement Analysis
	<p data-bbox="384 261 1014 293">Why am I being asked to verify my HRCU card? —</p> <p data-bbox="384 326 1969 472">For security reasons we may need you to provide additional verification to add your HRCU card to Apple Pay. If necessary, Apple Wallet or the Apple Watch app will tell you how to verify you card. If your information is verified, you should receive an Apple Wallet or Apple Watch app notification that your card is ready for Apple Pay. If you haven't received a notification after an hour, please call us at 603.509-1297.</p> <p data-bbox="384 488 1087 521"><a href="https://www.hrcu.org/resources/faq/?faq_cat=apple-pay">https://www.hrcu.org/resources/faq/?faq_cat=apple-pay</a></p> <p data-bbox="384 561 1948 667">Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p>
responsive to the requesting, receiving the authorization to establish the function to conduct the financial transaction; then	<p data-bbox="384 695 1976 760">The Accused Products use a method that involves, “responsive to the requesting, receiving the authorization to establish the function to conduct the financial transaction.”</p> <p data-bbox="384 800 1961 865">For example, in response to requesting authorization, the iPhone receives the authorization from the card issuer if the card is eligible for Apple Pay. The authorization establishes the ability to conduct a financial transaction using Apple Pay.</p>

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	<div data-bbox="380 250 1453 982"> <h3>Add a debit or credit card</h3> <ol style="list-style-type: none"> <li>1. Open the Wallet app  on your iPhone.</li> <li>2. Tap . You may be asked to <a href="#">sign in with your Apple ID</a>.</li> <li>3. Do one of the following: <ul style="list-style-type: none"> <li>• <i>Add a new card</i>: Tap Debit or Credit Card, tap Continue, then position your card so that it appears in the camera frame, or enter the card details manually.</li> <li>• <i>Apply for Apple Card</i>: See <a href="#">Set up and use Apple Card on iPhone</a>.</li> <li>• <i>Add your previous cards</i>: Tap Previous Cards, then choose any cards you previously used. These cards may include the card associated with your Apple ID, cards you use with Apple Pay on your other devices, cards you <a href="#">added to Safari AutoFill</a>, or cards you removed from Wallet. Tap Continue, authenticate with Face ID or Touch ID, then follow the onscreen instructions.</li> <li>• <i>Add a card from a supported app</i>: Tap the app of your bank or card issuer (below From Apps on Your iPhone).</li> </ul> </li> </ol> <p>The card issuer determines whether your card is eligible for Apple Pay, and may ask you for additional information to complete the verification process.</p> </div> <p><a href="https://support.apple.com/guide/iphone/set-up-apple-pay-iph9b7f53382/ios">https://support.apple.com/guide/iphone/set-up-apple-pay-iph9b7f53382/ios</a></p>

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	<p data-bbox="380 251 1444 391">5. The <b>Issuer Bank</b> receives the <i>Payment Token</i> and <i>Payment-Token-Key</i> from the <b>Token Service Provider (TSP)</b>, and adds a <i>CVV-Key (i.e. public key)</i> to the mix.</p> <p data-bbox="380 423 1444 516">6. The <b>Issuer Bank</b> then returns the <i>Payment Token</i>, <i>Payment-Token-Key</i> and the <i>CVV-Key</i> back to the <b>Apple Pay Servers</b>.</p> <p data-bbox="380 548 1444 732">7. Apple Pay, uses its own <b>Trusted Service Manager (TSM)</b> and provisions the <i>Payment Token</i>, <i>Payment Token-Key</i> and <i>CVV-Key</i> and maybe other data onto the “Secure Element” i.e. the secure hardware chip on the physical iPhone device.</p> <p data-bbox="380 748 1270 781"><a href="https://codeburst.io/how-does-apple-pay-actually-work-f52f7d9348b7">https://codeburst.io/how-does-apple-pay-actually-work-f52f7d9348b7</a></p> <div data-bbox="380 821 1696 1162"> <h2 data-bbox="380 821 1696 967">Apple Pay participating banks in Canada, Latin America, and the United States</h2> <p data-bbox="380 1000 1696 1140">Apple Pay works with many of the major credit and debit cards from the top banks. Just add your supported cards and continue to get all the rewards, benefits, and security of your cards.</p> </div> <p data-bbox="380 1162 926 1195"><a href="https://support.apple.com/en-us/HT204916">https://support.apple.com/en-us/HT204916</a></p> <p data-bbox="380 1235 1948 1344">Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p>

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responsive to receiving the authorization, establishing the function to conduct the financial transaction; and then	<p>The Accused Products use a method that involves, “responsive to receiving the authorization, establishing the function to conduct the financial transaction.”</p> <p>For example, when the iPhone receives the authorization, the iPhone user may conduct financial transactions using Apple Pay.</p> <div data-bbox="380 467 1453 1203" style="border: 1px solid black; padding: 10px;"> <p><b>Add a debit or credit card</b></p> <ol style="list-style-type: none"> <li>1. Open the Wallet app  on your iPhone.</li> <li>2. Tap . You may be asked to <a href="#">sign in with your Apple ID</a>.</li> <li>3. Do one of the following: <ul style="list-style-type: none"> <li>• <i>Add a new card:</i> Tap Debit or Credit Card, tap Continue, then position your card so that it appears in the camera frame, or enter the card details manually.</li> <li>• <i>Apply for Apple Card:</i> See <a href="#">Set up and use Apple Card on iPhone</a>.</li> <li>• <i>Add your previous cards:</i> Tap Previous Cards, then choose any cards you previously used. These cards may include the card associated with your Apple ID, cards you use with Apple Pay on your other devices, cards you <a href="#">added to Safari AutoFill</a>, or cards you removed from Wallet. Tap Continue, authenticate with Face ID or Touch ID, then follow the onscreen instructions.</li> <li>• <i>Add a card from a supported app:</i> Tap the app of your bank or card issuer (below From Apps on Your iPhone).</li> </ul> </li> </ol> <p>The card issuer determines whether your card is eligible for Apple Pay, and may ask you for additional information to complete the verification process.</p> </div> <p><a href="https://support.apple.com/guide/iphone/set-up-apple-pay-iph9b7f53382/ios">https://support.apple.com/guide/iphone/set-up-apple-pay-iph9b7f53382/ios</a></p>



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	<p data-bbox="380 251 1360 435">7. Apple Pay, uses its own <b>Trusted Service Manager (TSM)</b> and provisions the <i>Payment Token</i>, <i>Payment Token-Key</i> and <i>CVV-Key</i> and maybe other data onto the “Secure Element” i.e. the secure hardware chip on the physical iPhone device.</p> <p data-bbox="380 488 1325 581">This then is the “Payment Token” that Apple saves on its Secure Element (SE) and calls the <i>DAN (Device Account Number)</i>.</p> <p data-bbox="380 586 1268 630"><a href="https://codeburst.io/how-does-apple-pay-actually-work-f52f7d9348b7">https://codeburst.io/how-does-apple-pay-actually-work-f52f7d9348b7</a></p> <div data-bbox="380 662 1696 1003"> <h2 data-bbox="380 669 1696 813">Apple Pay participating banks in Canada, Latin America, and the United States</h2> <p data-bbox="380 841 1696 987">Apple Pay works with many of the major credit and debit cards from the top banks. Just add your supported cards and continue to get all the rewards, benefits, and security of your cards.</p> <p data-bbox="380 1003 926 1047"><a href="https://support.apple.com/en-us/HT204916">https://support.apple.com/en-us/HT204916</a></p> </div> <p data-bbox="380 1073 1948 1198">Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p>
responsive to satisfying a proximity condition relative to an	The Accused Products use a method that involves, “responsive to satisfying a proximity condition relative to an entity and responsive to sensing the physiological parameter and determining that the physiological parameter sensed satisfies the criterion, using the function that has been established to conduct the financial transaction and conducting the financial transaction by paying for a product.”



Claim	Exemplary Infringement Analysis
<p>entity and responsive to sensing the physiological parameter and determining that the physiological parameter sensed satisfies the criterion, using the function that has been established to conduct the financial transaction and conducting the financial transaction by paying for a product;</p>	<p>For example, using an iPhone to conduct a financial transaction via Apple Pay includes using Apple Pay (the function that was established) to conduct the financial transaction by paying for a product. Use of the function (Apple Pay functionality) to pay for a product is in response to satisfaction of a proximity criterion between the iPhone and a point-of-sale terminal (the entity) and in response to sensing the physiological parameter and determining that the sensed physiological parameter satisfies a criterion. The proximity criterion is satisfied by the iPhone being within range of the point-of-sale terminal for NFC communications. Also, conducting the transaction via Apple Pay includes recognizing and accepting a fingerprint or facial geometry associated with the user.</p> <div data-bbox="380 540 1377 1044" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p><b>When you use Apple Pay in stores</b></p> <p>When you <a href="#">use Apple Pay in stores</a> that accept contactless payments, Apple Pay uses Near Field Communication (NFC) technology between your device and the payment terminal. NFC is an industry-standard, contactless technology that's designed to work only across short distances. If your iPhone is on and detects an NFC field, it will present you with your default card. To send your payment information, you must authenticate using Face ID, Touch ID, or your passcode (except in Japan if you designate a Suica card for Express Transit). With Face ID or with Apple Watch, you must double-click the side button when the device is unlocked to activate your default card for payment.</p> <p>After you authenticate your transaction, the Secure Element provides your Device Account Number and a transaction-specific dynamic security code to the store's point of sale terminal along with additional information needed to complete the transaction. Again, neither Apple nor your device sends your actual payment card number. Before they approve the payment, your bank, card issuer, or payment network can verify your payment information by checking the dynamic security code to make sure that it's unique and tied to your device.</p> </div> <p><a href="https://support.apple.com/en-us/HT203027">https://support.apple.com/en-us/HT203027</a></p>

Claim	Exemplary Infringement Analysis
	<div data-bbox="386 264 1413 526"> <h3>Face ID security</h3> <p>With a simple glance, Face ID securely unlocks supported Apple devices. It provides intuitive and secure authentication enabled by the TrueDepth camera system, which uses advanced technologies to accurately map the geometry of a user's face. Face ID uses neural networks for determining attention, matching, and antispoofing, so a user can unlock their phone with a glance, even with a mask on when using supported devices. Face ID automatically adapts to changes in appearance, and carefully safeguards the privacy and security of a user's biometric data.</p> </div> <div data-bbox="386 532 1430 997"> <h3>Touch ID security</h3> <p>Touch ID is the fingerprint sensing system that makes secure access to supported Apple devices faster and easier. This technology reads fingerprint data from any angle and learns more about a user's fingerprint over time, with the sensor continuing to expand the fingerprint map as additional overlapping nodes are identified with each use.</p> <p>Apple devices with a Touch ID sensor can be unlocked using a fingerprint. Touch ID doesn't replace the need for a device passcode or user password, which is still required after device startup, restart, or logout (on a Mac). In some apps, Touch ID can also be used in place of a device passcode or user password—for example, to unlock password-protected notes in the Notes app, to unlock keychain-protected websites, and to unlock supported app passwords. However, a device passcode or user password is always required in some scenarios (for example, to change an existing device passcode or user password or to remove existing fingerprint enrollments or create new ones).</p> </div> <div data-bbox="378 1003 1570 1036"> <p><a href="https://support.apple.com/guide/security/face-id-and-touch-id-security-sec067eb0c9e/1/web/1">https://support.apple.com/guide/security/face-id-and-touch-id-security-sec067eb0c9e/1/web/1</a></p> </div>

Claim	Exemplary Infringement Analysis
	<div data-bbox="384 293 1440 800" style="border: 1px solid black; padding: 10px;"> <p><b>Pay with your default card on an iPhone with Face ID</b></p> <ol style="list-style-type: none"> <li>1. Double-click the side button.</li> <li>2. When your default card appears, glance at iPhone to authenticate with Face ID, or enter your passcode.</li> <li>3. Hold the top of your iPhone near the card reader until you see Done or a checkmark on the screen.</li> </ol> <hr/> <p><b>Pay with your default card on an iPhone with Touch ID</b></p> <ol style="list-style-type: none"> <li>1. Rest your finger on Touch ID.</li> <li>2. Hold the top of your iPhone near the card reader until you see Done or a checkmark on the screen.</li> </ol> </div> <p><a href="https://support.apple.com/guide/iphone/use-apple-pay-for-contactless-payments-iphbd4cf42b4/ios">https://support.apple.com/guide/iphone/use-apple-pay-for-contactless-payments-iphbd4cf42b4/ios</a></p> <p>Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p>
<p>wherein said paying for a product comprises sensing that the proximity condition is satisfied relative to an access point maintained by a vendor at a</p>	<p>The Accused Products perform the method above, “wherein said paying for a product comprises sensing that the proximity condition is satisfied relative to an access point maintained by a vendor at a point of purchase counter, by detecting a short-range signal that is transmitted by the access point, determining that the physiological parameter sensed satisfies the criterion.”</p> <p>For example, using an iPhone to conduct a financial transaction via Apple Pay includes paying for a product by sensing that the iPhone is within range of the point-of-sale terminal’s access point (maintained by a vendor at a point of purchase counter) via NFC. The method includes detecting a short-range signal (NFC) transmitted by the point-of-sale terminal’s access point. The communicating is also responsive to a parameter sensed by the iPhone (e.g., a physiological parameter) satisfying a criterion. Conducting a transaction via Apple Pay includes recognizing and accepting a fingerprint or facial geometry associated with the user.</p>

Claim	Exemplary Infringement Analysis
<p>point of purchase counter, by detecting a short-range signal that is transmitted by the access point, determining that the physiological parameter sensed satisfies the criterion and then,</p>	<div data-bbox="380 248 1377 748"> <h3>When you use Apple Pay in stores</h3> <p>When you <a href="#">use Apple Pay in stores</a> that accept contactless payments, Apple Pay uses Near Field Communication (NFC) technology between your device and the payment terminal. NFC is an industry-standard, contactless technology that's designed to work only across short distances. If your iPhone is on and detects an NFC field, it will present you with your default card. To send your payment information, you must authenticate using Face ID, Touch ID, or your passcode (except in Japan if you designate a Suica card for Express Transit). With Face ID or with Apple Watch, you must double-click the side button when the device is unlocked to activate your default card for payment.</p> <p>After you authenticate your transaction, the Secure Element provides your Device Account Number and a transaction-specific dynamic security code to the store's point of sale terminal along with additional information needed to complete the transaction. Again, neither Apple nor your device sends your actual payment card number. Before they approve the payment, your bank, card issuer, or payment network can verify your payment information by checking the dynamic security code to make sure that it's unique and tied to your device.</p> </div> <p><a href="https://support.apple.com/en-us/HT203027">https://support.apple.com/en-us/HT203027</a></p>

Claim	Exemplary Infringement Analysis
	<div data-bbox="380 251 1014 932" style="border: 1px solid black; padding: 10px;"> <p><b>Pay with your iPhone</b></p> <ol style="list-style-type: none"> <li>1. To use your default card: <ul style="list-style-type: none"> <li>• If your iPhone has Face ID, double-click the side button. If prompted, authenticate with Face ID or enter your passcode to open Apple Wallet.</li> <li>• If your iPhone has Touch ID, double-click the Home button.</li> </ul> </li> <li>2. To use a different card, tap your default card to see your other cards. Tap a new card and authenticate.</li> <li>3. Hold the top of your iPhone near the contactless reader until Done and a checkmark appear on the display.</li> </ol> </div> <p><a href="https://support.apple.com/en-us/HT201239">https://support.apple.com/en-us/HT201239</a></p> <p>Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p>
responsive to having sensed that the proximity condition is satisfied relative to the access	<p>The Accused Products use a method that involves, “responsive to having sensed that the proximity condition is satisfied relative to the access point and having determined that the physiological parameter sensed satisfies the criterion, paying for the product by selectively sending information to at least one device.”</p> <p>For example, when conducting financial transactions via Apple Pay, an iPhone pays for a product by selectively sending information to a device (such as the point-of-sale terminal, which is a device) in response to having sensed that the proximity</p>


Claim	Exemplary Infringement Analysis
<p>point and having determined that the physiological parameter sensed satisfies the criterion, paying for the product by selectively sending information to at least one device;</p>	<p>criterion is satisfied relative to the point-of-sale terminal's access point and in response to having determined that the sensed physiological parameter (e.g., a fingerprint or facial geometry associated with the user) satisfies a criterion.</p> <div data-bbox="380 358 1383 1092" style="border: 1px solid black; padding: 10px;"> <h3>Paying with cards using Apple Pay</h3> <p>Apple Pay can be used to pay for purchases in stores, within apps, and at websites.</p> <h4>Paying with cards in stores</h4> <p>If iPhone or Apple Watch is on and detects an NFC field, it presents the user with the requested card (if automatic selection is turned on for that card) or the default card, which is managed in Settings. The user can also go to Apple Wallet and choose a card, or when the device is locked, can:</p> <ul style="list-style-type: none"> <li>• Double-click the side button on devices with Face ID</li> <li>• Double-click the Home button on devices with Touch ID</li> <li>• Using Accessibility features that allow Apple Pay from the Lock Screen</li> </ul> <p>Next, before information is transmitted, the user must authenticate using Face ID, Touch ID, or their passcode. When Apple Watch is unlocked, double-clicking the side button activates the default card for payment. No payment information is sent without user authentication.</p> <p>After the user authenticates, the Device Account Number and a transaction-specific dynamic security code are used when processing the payment. Neither Apple nor a user's device sends the full credit or debit card numbers to merchants. Apple may receive anonymous transaction information such as the approximate time and location of the transaction, which helps improve Apple Pay and other Apple products and services.</p> </div> <p><a href="https://support.apple.com/guide/security/paying-with-cards-using-apple-pay-secfbd5c0e54/1/web/1">https://support.apple.com/guide/security/paying-with-cards-using-apple-pay-secfbd5c0e54/1/web/1</a></p>


Claim	Exemplary Infringement Analysis
	<div data-bbox="380 248 1262 824"> <p><b>When you Pay using Apple Pay with your iPhone</b></p> <p>Apple Pay uses <i>NFC</i> to send payment data to the contactless POS terminal when you Tap &amp; Pay .</p> <p>Apple Pay uses the <i>EMVCo's contactless suite of specifications</i> to pass the data from your iPhone to the contactless reader terminal.</p> <p>1. When you pay using the iPhone with Apple Pay, you authenticate yourself to the iPhone device Secure Element (SE) using your biometric (i.e. fingerprint, face id or PIN).</p> <p><i>The authentication process only authenticates you to the Secure Element (SE), and allows Apple Pay to access the information stored on the Secure Element (SE). Other than this initial Authentication process, neither the Secure Element (SE) nor the biometrics (i.e. Touch ID etc), are involved in the rest of the Apple Pay process.</i></p> </div> <p data-bbox="380 829 1262 862"><a href="https://codeburst.io/how-does-apple-pay-actually-work-f52f7d9348b7">https://codeburst.io/how-does-apple-pay-actually-work-f52f7d9348b7</a></p> <div data-bbox="380 902 1291 987"> <p>3. The POS sends this request to the Acquirer Bank (Merchant Bank), which in turn forwards it to the Payment Network <i>eg. Visa, Mastercard etc.</i></p> </div> <p data-bbox="380 992 1262 1024"><a href="https://codeburst.io/how-does-apple-pay-actually-work-f52f7d9348b7">https://codeburst.io/how-does-apple-pay-actually-work-f52f7d9348b7</a></p>



Claim	Exemplary Infringement Analysis
	<div data-bbox="380 251 1014 932" style="border: 1px solid black; padding: 10px;"> <p><b>Pay with your iPhone</b></p> <ol style="list-style-type: none"> <li>1. To use your default card: <ul style="list-style-type: none"> <li>• If your iPhone has Face ID, double-click the side button. If prompted, authenticate with Face ID or enter your passcode to open Apple Wallet.</li> <li>• If your iPhone has Touch ID, double-click the Home button.</li> </ul> </li> <li>2. To use a different card, tap your default card to see your other cards. Tap a new card and authenticate.</li> <li>3. Hold the top of your iPhone near the contactless reader until Done and a checkmark appear on the display.</li> </ol> </div> <p><a href="https://support.apple.com/en-us/HT201239">https://support.apple.com/en-us/HT201239</a></p> <p>Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p>
wherein said paying for the product by selectively sending information to at least one device	<p>The Accused Products perform the method above, “wherein said paying for the product by selectively sending information to at least one device comprises selectively and wirelessly transmitting information to the at least one device using unlicensed frequencies.”</p> <p>For example, the step of paying for a product (as described above) includes selectively transmitting information to the device (point-of-sale terminal) using an unlicensed frequency. In particular, the wireless short-range communications link used by NFC is based upon the unlicensed 13.56 MHz frequency.</p>



Claim	Exemplary Infringement Analysis
<p>comprises selectively and wirelessly transmitting information to the at least one device using unlicensed frequencies; and</p>	<div data-bbox="380 285 1167 656" style="border: 1px solid black; padding: 10px;"> <p><b>How Does Near-Field Communication Work?</b></p> <p>Near-field communication is a wireless connectivity technology that is based on RFID. It uses induction coupling to enable communication between two compatible devices that are close. It enables users to automatically transfer data bi-directionally between two NFC-enabled devices by just touching both of them or by bringing them close to each other.</p> <p>NFC operates at the globally unlicensed 13.56 MHz frequency. It has three different data transfer rates – i.e., 212 kbit/s, 106 kbit/s, and 424 kbit/s.</p> </div> <p><a href="https://www.spiceworks.com/tech/networking/articles/what-is-near-field-communication/">https://www.spiceworks.com/tech/networking/articles/what-is-near-field-communication/</a></p> <p>Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p>
<p>wherein said paying for a product further comprises deducting/withdrawing an amount of money from an account.</p>	<p>The Accused Products perform the method above, “wherein said paying for a product further comprises deducting/withdrawing an amount of money from an account.”</p> <p>For example, using an iPhone to conduct a financial transaction via Apple Pay results in deducting/withdrawing an amount of money from an account associated with the credit card or payment instrument used by Apple Pay.</p> <div data-bbox="380 1078 1457 1321" style="border: 1px solid black; padding: 10px;"> <p><b>Use Apple Pay for contactless payments on iPhone</b></p> <p>With your Apple Cash, credit, and debit cards stored in the Wallet app  on iPhone, you can use Apple Pay for secure, contactless payments in stores, restaurants, and more.</p> </div> <p><a href="https://support.apple.com/guide/iphone/use-apple-pay-for-contactless-payments-iphbd4cf42b4/ios">https://support.apple.com/guide/iphone/use-apple-pay-for-contactless-payments-iphbd4cf42b4/ios</a></p>

Claim	Exemplary Infringement Analysis
	<p data-bbox="407 256 1709 285">Why is the transaction amount displayed in Apple Wallet different from what's in my HRCU Online or Mobile account details? </p> <p data-bbox="407 315 1755 409">If you make an Apple Pay purchase with your Debit Card, the merchant may request authorization for an initial amount and send us the actual transaction amount for payment. The initial authorized amount appears in your Apple Wallet, but the actual transaction amount is deducted from your account. This happens in places where:</p> <ul data-bbox="432 438 1780 636" style="list-style-type: none"> <li>◦ You can add a tip (restaurants, salons)</li> <li>◦ There can be a significant difference between the amount that is initially authorized and the actual transaction amount (hotels, car rental agencies)</li> <li>◦ For most Debit Card purchases, we receive the payment request, including the actual transaction amount, within 3 business days of the transaction.</li> <li>◦ Keep track of your transactions and ensure you have sufficient funds in your account to cover the final payment.</li> </ul> <p data-bbox="373 649 1087 685"><a href="https://www.hrcu.org/resources/faq/?faq_cat=apple-pay">https://www.hrcu.org/resources/faq/?faq_cat=apple-pay</a></p> <p data-bbox="373 724 1944 828">Investigation of both the patent and the Accused Products (and other potentially infringing products) is ongoing. This chart is based on evidence and analysis reasonably accessible at this time. Telcom reserves the right to update and amend the above as the litigation progresses, including in view of discovery provided by the Defendant.</p>